

WHAT IS CLAIMED IS:

1                   1.       An apparatus for coating a substrate, the apparatus comprising:  
2                   a support that supports the substrate; and  
3                   at least one movable processing apparatus that can deposit a metal layer onto  
4 the substrate, wherein the processing apparatus is movable between a first position adjacent  
5 the substrate and a second position apart from the substrate.

1                   2.       The apparatus of claim 1 wherein the support comprises a conveyor  
2 assembly that can move the substrate.

1                   3.       The apparatus of claim 1 wherein the processing apparatus in the first  
2 position creates a seal around at least a portion of the substrate.

1                   4.       The apparatus of claim 3 further comprising a vacuum source coupled  
2 to the processing apparatus for creating a vacuum in the processing apparatus around the  
3 portion of the substrate.

1                   5.       The apparatus of claim 1 wherein the support positions the substrate  
2 along a plane, wherein the processing apparatus is movable orthogonal to the plane.

1                   6.       The apparatus of claim 1 wherein the support positions the substrate  
2 along a plane, wherein the processing apparatus is rotatable about an axis that is parallel the  
3 plane of the substrate.

1                   7.       The apparatus of claim 1 wherein the processing apparatus comprises a  
2 plurality of modular units.

1                   8.       The apparatus of claim 7 wherein each of the modular units has a  
2 treatment plane disposed in a different plane.

1                   9.       The apparatus of claim 7 wherein the modular units are removable.

1                   10.      The apparatus of claim 7 wherein the processing apparatus comprises  
2 at least three modular units

1                   11.      The apparatus of claim 7 wherein the processing apparatus comprises  
2 between three and six modular units

1                   12.     The apparatus of claim 7 wherein the modular units comprise conduits  
2 for communication with a vacuum source, a power source, or a gas source.

1                   13.     The apparatus of claim 7 wherein the modular units comprises a cavity.

1                   14.     The apparatus of claim 7 wherein the modular units have a triangular  
2 cross section.

1                   15.     The apparatus of claim 7 wherein at least one of the modular units  
2 comprises a heating element.

1                   16.     The apparatus of claim 7 wherein at least one of the modular units  
2 comprises a filament and a removable cane.

1                   17.     The apparatus of claim 7 wherein the modular unit comprises a cutting  
2 element.

1                   18.     The apparatus of claim 7 wherein the modular unit comprises a  
2 pretreatment assembly.

1                   19.     The apparatus of claim 1 wherein the at least one processing comprises  
2 a first and second processing apparatus, wherein the first and second processing apparatus are  
3 disposed on opposing sides of the substrate.

1                   20.     An apparatus for metallizing a substrate, the apparatus comprising:  
2 a support that can maintain at least a portion of the substrate along a first  
3 plane; and

4 at least one rotatable processing apparatus that is movable substantially  
5 orthogonal to the orientation of the substrate;

6 wherein the processing apparatus comprises a plurality of modular units, the  
7 plurality of modular units comprising at least one of a thermoform assembly, a heating  
8 assembly, a metallizing assembly, or a cutting assembly.

1                   21.     The apparatus of claim 20 wherein the at least one rotatable processing  
2 apparatus comprises a first processing apparatus disposed on a first side of the substrate and a  
3 second processing apparatus disposed on a second side of the substrate.

1                   22.     The apparatus of claim 20 wherein the support comprises a conveyor  
2 assembly for moving the substrate.

1                   23.     The apparatus of claim 20 wherein the modular units are removable.

1                   24.     The apparatus of claim 20 wherein modular unit comprising the  
2 metallizing assembly comprises a cavity for receiving and sealing the substrate.

1                   25.     The apparatus of claim 24 wherein the modular unit comprising the  
2 metallizing assembly comprises a conduit, wherein the conduit is releasably connectable to a  
3 vacuum source.

1                   26.     The apparatus of claim 24 wherein the modular unit comprising the  
2 metallizing assembly comprises a filament and a metal source.

1                   27.     An in-line apparatus for creating an EMI shield, the apparatus  
2 comprising:  
3                   a conveyor assembly that moves a substrate from a first position to a second  
4 position;  
5                   a movable shaping assembly disposed at the first position to shape the  
6 substrate;  
7                   a metallization assembly that can create a seal around the shaped substrate,  
8 wherein the metallization assembly deposits a metal layer onto the shaped substrate; and  
9                   a cutting assembly disposed at the second position to cut the shaped substrate,  
10 the cutting assembly being movable relative to the shaped substrate.

1                   28.     The in-line apparatus of claim 27 wherein the metallization assembly is  
2 releasably coupled to a movable vacuum source.

1                   29.     The in-line apparatus of claim 27 wherein the conveyor assembly  
2 positions at least a portion of the substrate along a plane, wherein the shaping assembly,  
3 metallization assembly and cutting assembly are movable orthogonal to the plane of the  
4 substrate.

1           30.     The in-line apparatus of claim 27 wherein the shaping assembly  
2 comprises a first portion disposed on a first side of the substrate and a second portion  
3 disposed on a second side of the substrate.

1           31.     The in-line apparatus of claim 27 wherein the metallization assembly  
2 comprises an removable protective insert.

1           32.     A method of manufacturing a EMI shield, the method comprising:  
2 positioning a substrate on a support;  
3 moving a processing apparatus adjacent to the substrate;  
4 depositing a metal layer on the substrate; and  
5 moving the processing apparatus away from the substrate.

1           33.     The method of claim 32 further comprising creating a vacuum around  
2 at least a portion of the substrate.

1           34.     The method of claim 32 further comprising moving the substrate along  
2 the support.

1           35.     The method of claim 32 further comprising shaping the substrate  
2 before depositing the metal layer.

1           36.     The method of claim 35 wherein depositing requires rotating a  
2 processing apparatus to rotate a shaping module away from the substrate and a metal  
3 depositing module toward the substrate.

1           37.     The method of claim 35 comprising cutting the shaped substrate after  
2 depositing the metal layer.